1.4 Big DATA – Big Insights

ICE BREAKERS

1] Give business suggestions to the respective industry/ company for the following suggestion. One is done for you.

You have received data that -

(a) Many passengers prefer morning flights between 7 am and 9 am from Mumbai to Delhi.

Suggestion: Increase the number of flights between 7 am and 9 am.

(b) Many students are opting (choose / prefer) for UPSC/MPSC EXAMS.

Suggestion: Publish more books and open coaching center.

(c) Many people go for morning walk to Kamla Nehru Park.

Suggestion: Build more jogging tracks and other facilities.

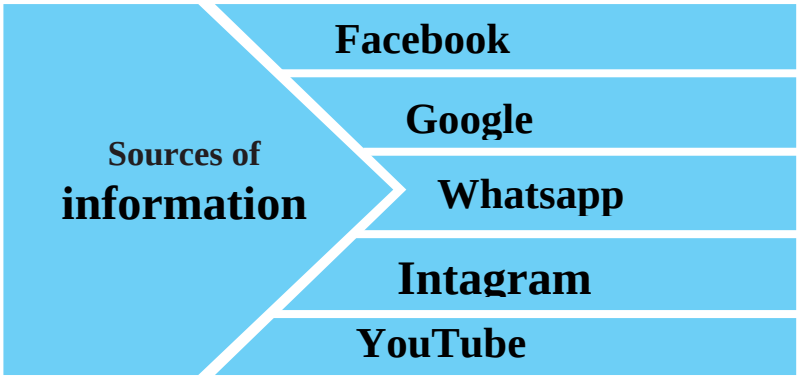
(d) Many people buy clothes from Miracal.com an online shopping site.

Suggestion: Increase the varieties of products in low price.

(e) The viewership on television is more between 8 pm and 10 pm.

Suggestion: Broadcast more popular TV shows between 8 and 10 pm to generate more revenue through advertising.

2] People get information from various sources: Can you name a few?



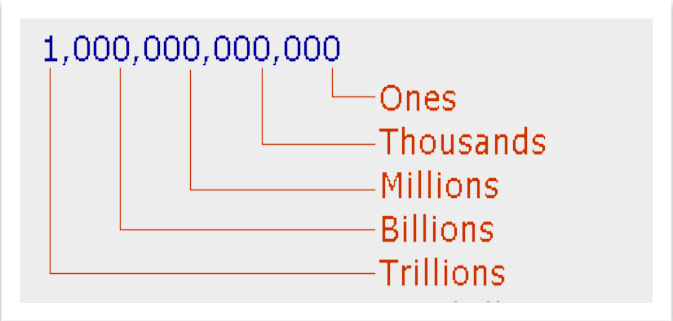
Big Data -Big Insights

(Insights - clear or deep perception of a situation/ गहन जानकारी)

There is a revolution (Change) in the life style of people which has been affected by Big Data. Our food habits, our health care our

travelling, our scientific pursuits (following/ hobby), you name it and everything has changed 360 degrees (totally/completely/ comprehensive). The massive data available with us can really work

wonders. Friends, do you know what happens when we like a post on Facebook or share a post on WhatsApp, visit any website, make online purchases, or watch videos? Yes, whatever activity we do online is recorded, monitored **(keep an eye on)** and analysed **(study / examine).** So a huge amount of data is collected. Let me give you an idea of how huge the data might be. Big data can be petabytes or Exabyte's of data consisting of **billions** (एक अब्ज) to **trillions millions** (दहा लाख करोड) of records of **millions** (दहा लाख) of people-

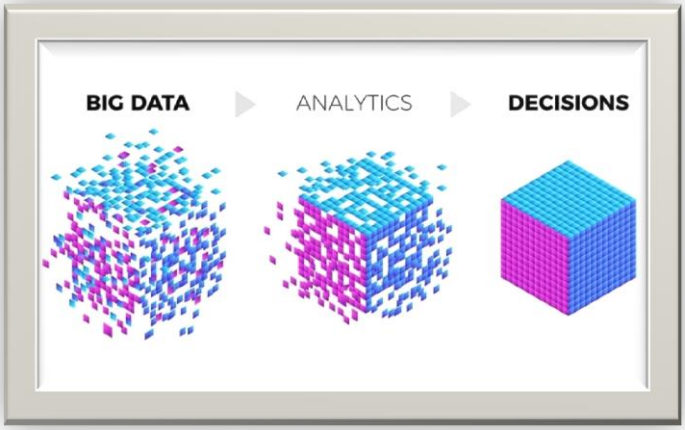


Bytes	Unit Symbol	Name
1000 bytes	KB	Kilobyte
1000 Kilobytes	MB	Megabyte
1000 Megabytes	GB	Gigabyte
1000 Gigabytes	TB	Terabyte
1000 Terabytes	PB	Petabyte
1000 Petabytes	EB	Exabyte
1000 Exabytes	ZB	Zettabyte
1000 Zettabytes	YB	Yottabyte

All from different sources, for example web, sales, customer contact centre, social media, mobile data and so on. The data available to industries and companies is enormously increasing **in volume, variation, velocity, veracity and value.**

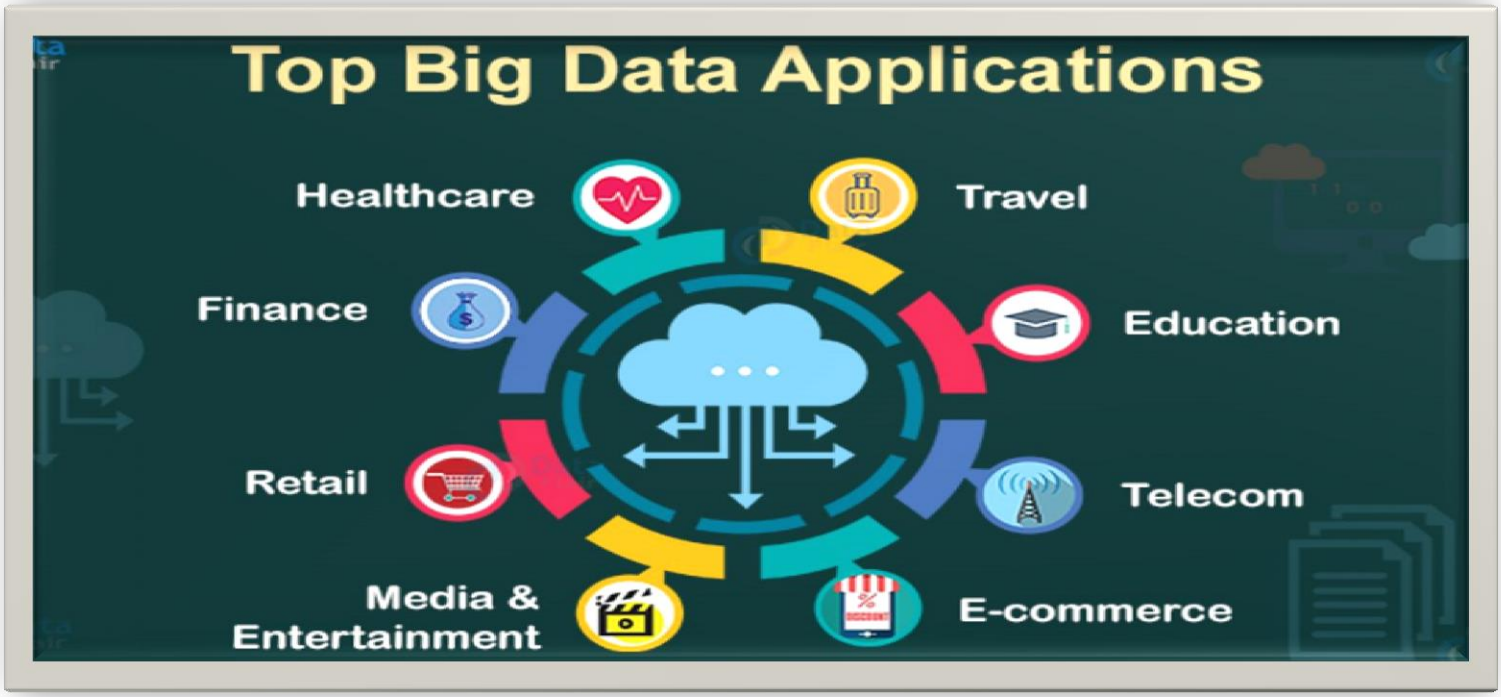
volume, - (size of data)
in petabytes or Exabyte's
variation, - (Different types of data)
photo, video, contact number, name
velocity, - (speed of which the data is generating) speed
veracity - (Data accuracy)
true / trusted data
value. – (Useful data)
how useful of that data

Such a Big data is easy to obtain but so massive (big) that it challenges the current computing technologies and hence Big Data analytics is used to give **insights (clear or deep perception of a situation/ गहन जानकारी)** that were previously incomprehensible (puzzling/ unknown).

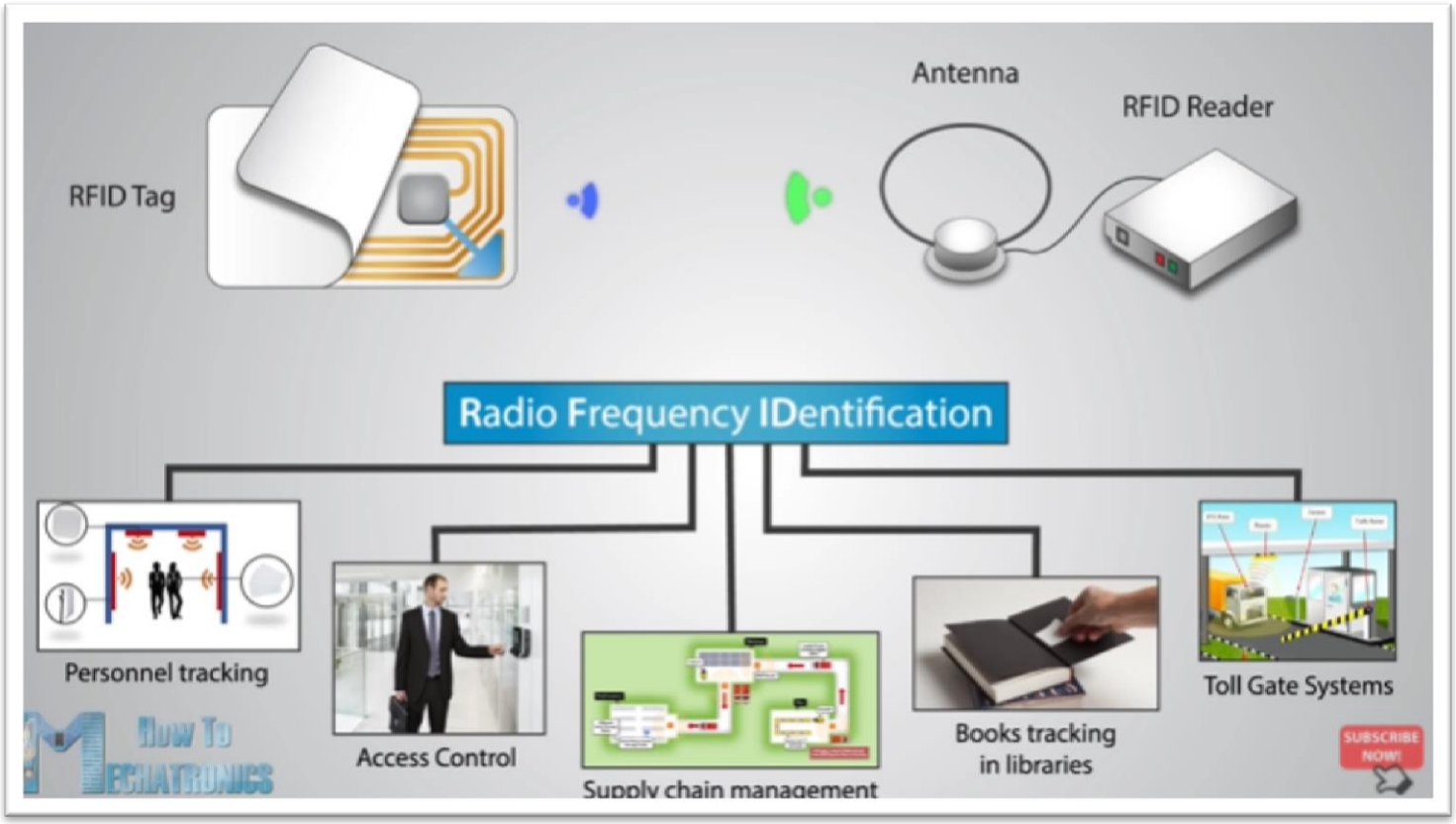


Big data analytics is the complex process of examining large and varied data sets or Big data to uncover information such as hidden patterns, unknown correlation (related) market trends (tendency) and customer preferences. With such a huge data available with the industries they can have innumerable advantages hence all the industries are trying to reap the maximum benefit from it. Many industries have advanced (higher/ progressive) by miles (largely) from their competitors. It's not the amount of data that is important but what the organizations do with the data is what matters.

Uses of Big Data



1] Location Tracking (Travelling) :



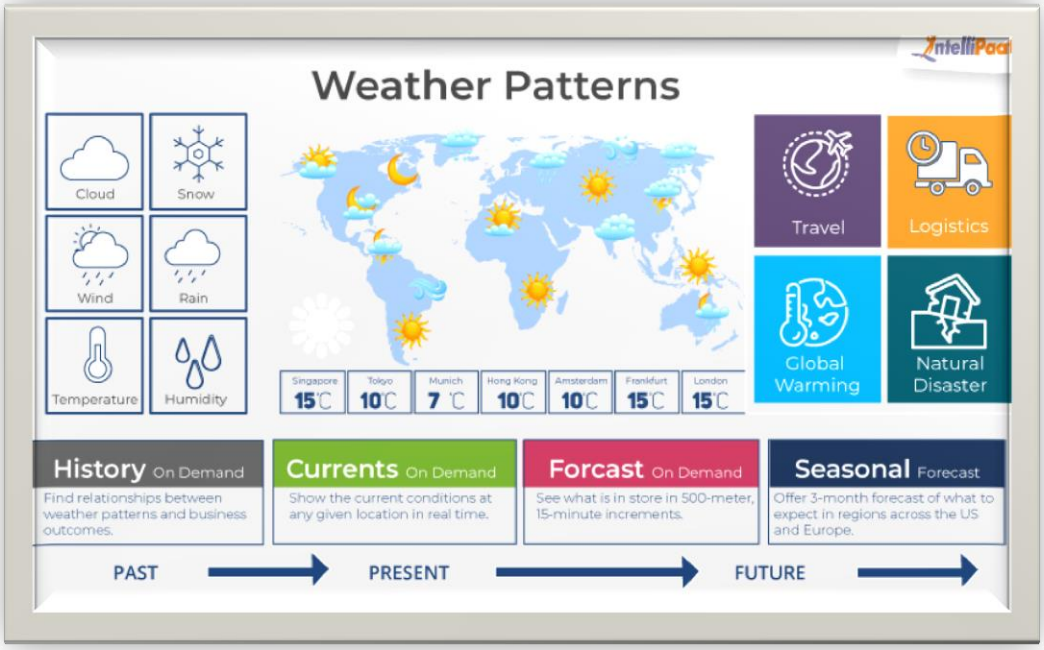
Big Data has been useful in identifying and tracking the exact location of a place. You're **GPS (Global Positioning System)** and Google Maps makes use of Big Data. With geographic positioning and radio frequency identification sensors (RFID) we get the real-time Data about traffic, congesting on a particular route, information if the route is closed or if it is one-way route, understanding accident prone (sensitive) area etc.

You can plan your own route according to the travel time and the transportation of goods. If you have ordered something online you can track the location of your goods in transit (travel/transport), you can also track the condition of the goods. This has immensely helped the logistics **(the commercial activity of transporting goods to customers)** companies to reduce risks in transport, improve speed and reliability in delivery.

2] Understanding the weather Patterns:

There are weather sensors and satellites set-up all around the globe. Huge amount of Data is continuously being received from them. They help us to

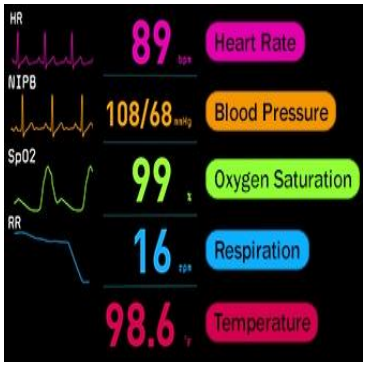
understand the weather and help in weather forecasting. Weather patterns give us warnings of the impending (approaching/ near) natural calamities (disaster/दुर्घटना; विपत्ति; आपदा) like floods, earth quack, tsunami etc. Necessary preparations to combat (encounter/ fight) them can be made well in advance. We can study global warming, predict (foretell/ पूर्वसूचना देना-) availability of natural resources like water.

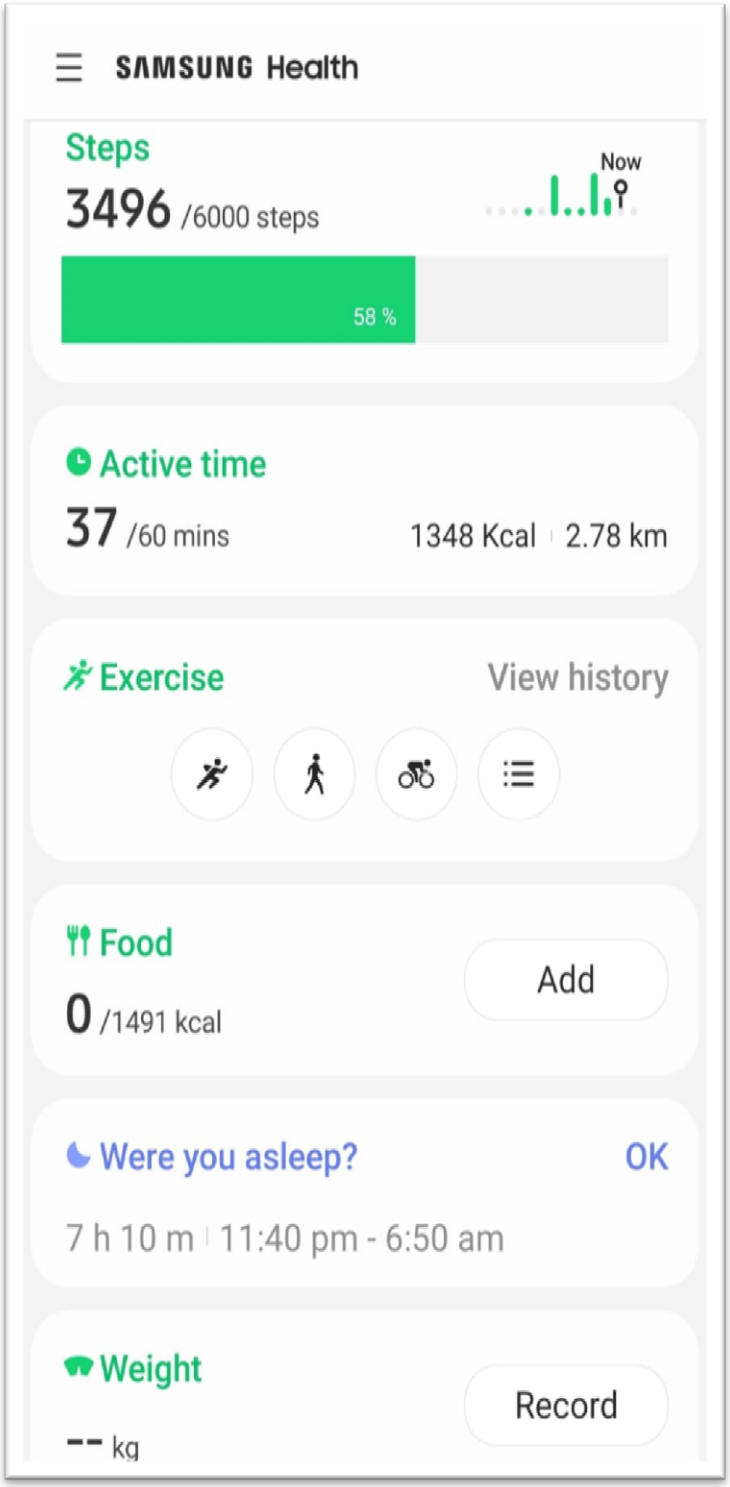


3] Health Care Industry:

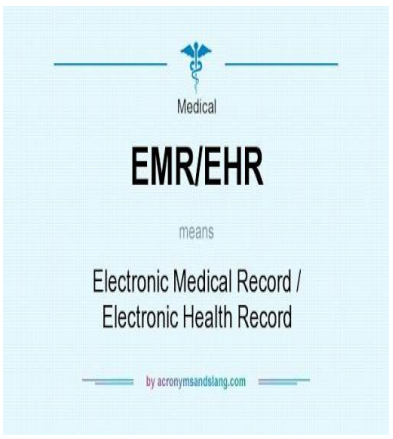
Today we see that people have become health conscious (aware/ जागरूक).

The smart watches, other wearable, health apps in our phone keep on collecting Data. We can say that they are our mini biomedical research devices.





They detect our heart rate, monitor the patient's sleep pattern, keep a record of his exercise, the distance walked etc. The analysis of this Data collected can give new insights and provide a personalized and individual feedback to each and every person. Nowadays we have gadgets to monitor blood sugar, blood pressure etc. at home; 24 x 7 monitoring can be provided to patients in hospitals too. With the help of Big Data the doctors can now have better diagnosis of any ailment (disease /illness), the effect of any drug etc. Unnecessary guesswork can be significantly reduced. Past records of the patients can be maintained and better analysis of the health can be obtained. Big Data helps in monitoring the outbreaks (eruption) of epidemics (महामारी) and diseases.



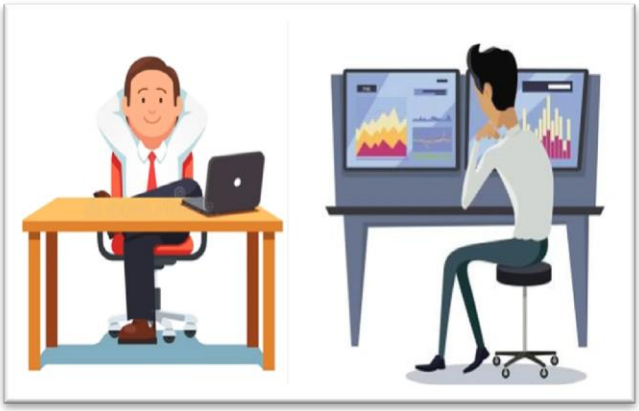
Just when you post your message, 'I'm down with flu' on WhatsApp or Facebook it will be monitored and the areas affected by "flu" can easily located and necessary precautions can be taken. Pharmaceutical companies would pay huge amount to receive the health Data of people to promote research in the particular area. With the help of the Data gathered, individuals (person) are often given suggestions and solutions for the problems they are encountering.

4] Banking, Finance and trading:

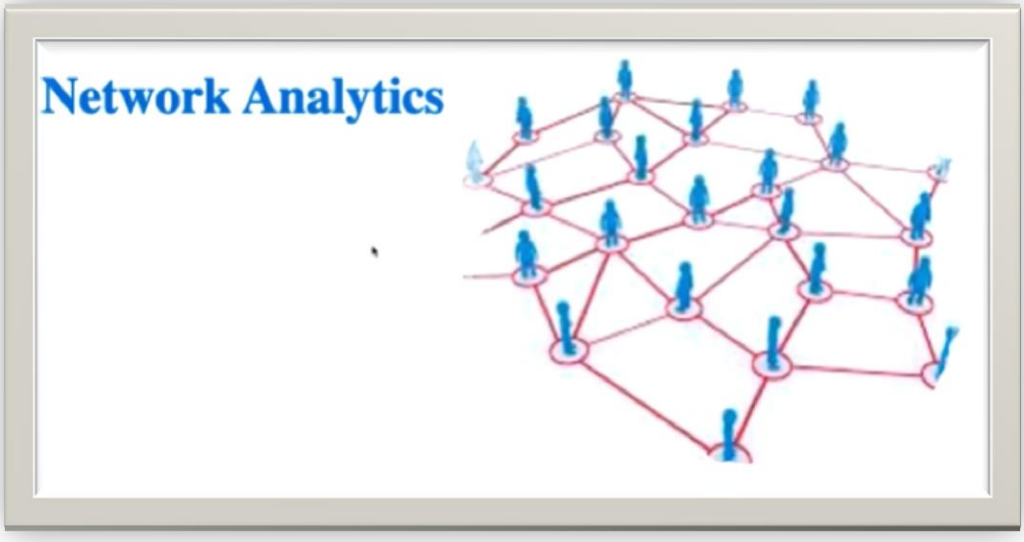
With the Big Data analytics, the investments patterns of the people can be studied **new** insights have enabled the banks and finance companies to

come with suitable plans. B**ig Data ha**s enabled smooth functioning of these agencies and institutions.

Banking and Finance sector (the commercial activity of providing funds and capital) is using Big Data to predict and prevent cybercrimes, card fraud detection, Archival of audit trials etc. By analyzing the past Data of their customers and the Data on previous **brute force (**cyber) **attack**s banks can predict future attempts. Big Data not only helps in predicting cyber-crimes, but it also helps in handling issues related to missed- transactions and failures in net banking. It can even predict possible spikes (sudden increase) on servers so that banks can manage transitions accordingly.



The Securities Exchange Commission (SEC) is using Big Data to monitor (Observe/ watch) financial market for possible illegal trades and **suspicious (doubtful/संदेहजनक)** activities. The SEC is using network analytics and **natural language (computer coding)** processors to identify possible frauds in the financial market



High-Frequency trading (HFT) is an area where Big Data finds a lot of use today. Here, Big Data **algorithms** **(a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer/design/ system)** used to make trading decisions. Today the majority, of equity trading now takes place via Data algorithms that increasing take into account signals from social media networks and news websites to make, buy and sell decisions in split seconds.

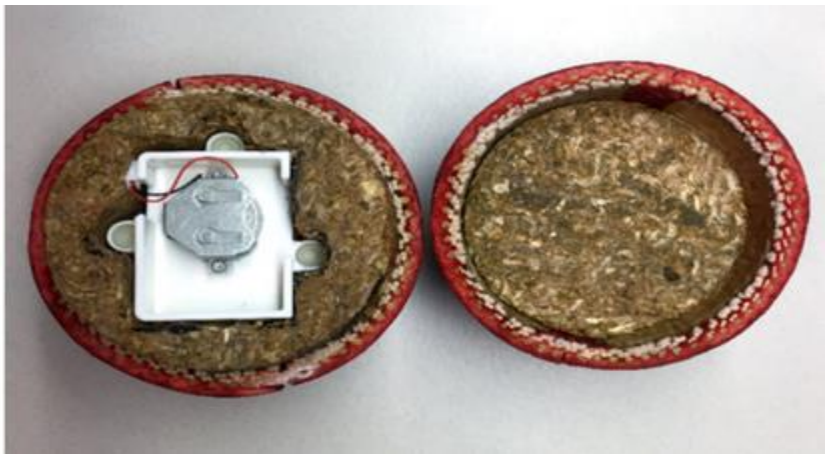
5] Sports: When watching a cricket match, we are shown so many permutations (variation) and combinations of statistical analysis. A gigantic (vast/big) Data has been created over a period of time from the recording of matches, training sessions and workouts. The Data enables a sportsperson to study his performance as well as of the other players worldwide. It has tremendously (largely) helped in improving individual as well as team performance.

TEAMS WITH 100 TEST WINS

TEAM	TESTS	WIN %	100TH TEST WIN (YEAR)
AUS	830	47.35	1951
ENG	1022	36.3	1939
WI	545	31.93	1988
SA	439	37.59	2006
IND	541	29.02	2009
PAK	428	32.24	2006
NZ	**441**	**22.6**	**2020**

Sensors embedded in sports equipment could provide real-time analytics, like tracking how fast the ball is moving or how players move across the field—is becoming a key component of how coaches make decisions and fans view games.

The sensors embedded (fixed/ installed) in the sports equipment help us to understand our game from close quarters (our home). The sensors help us to understand the field conditions, the weather, individual performance etc. Video analytics help us to see each and every performance minutely (sharply).



6] Advertising : Advertisers are one of the biggest players in Big Data. Be it
Facebook,
Google,
Twitter
or any **other online giant** (huge/ enormous), All keep a track of the user behavior and transactions (business/deal). These internet giants provide a great deal of Data about people to the advertisers so that they can run targeted campaigns.

Take Facebook, for example, here you can target people based on buying intent, website visits, interests, job role, **demographics (human age)** and what not. All this Data is collected by Facebook algorithms (design/ system) using Big Data analysis techniques. The same goes for Google, when you target people based on clicks you will get different results and when you create a campaign for leads then you will get different results. All this is made possible using Big Data.

7] Entertainment and Media: In the field of entertainment and media, Big Data focuses (concentrate) on targeting people with the right content (information) at the right time. Based on your past views and your behaviour online you will be shown different recommendations. This technique is popularly used by Netflix and YouTube to increase engagement (involvement/ investment) and drive more revenues.
Now, even television broadcasters are looking to segment (divide) their viewer's database and show different advertisement and shows accordingly. This will allow better revenue from ads and will provide a more engaging (pleasant /attractive) user experience.

Education Industry: Big Data has inundated (prosper/develop) the education industry. It has transformed (totally changed) it in leaps and bounds. Now we have information about the students, their study patterns,

and we can now prepare customized (make according to requirements) and Dynamic (effective) learning programmes according to the need of an individual student. Every student's comprehension (knowledge/ज्ञान) level is different. The course material can now be designed (creating) to different requirements of the students. Big Data makes it convenient to understand their choices, their difficulties, information regarding various courses and their specialties; we also have an access (obtain/gain) to the results. From the results we can gauge (Guess/test) the progress of the students, understand his strengths and weaknesses. This will also help in guiding the student regarding the best career for him based on his mental make-up and abilities. An in- depth study of all this would definitely give new insights into the education industry and help in improving the operational (functional) effectiveness and working of educational institutes. This would in general, enhance (improve) progress of all students. Big Data has provided a solution to one of the biggest pitfalls (problem) in the education industry, that is one – size- fits-all. We have innumerable uses of Big Data. It is helpful in scientific researches, understanding geographical phenomena (a remarkable development/ changes), helping in the smooth working of the government machinery etc.

It is a genie in our hands. It lies in our hands to make the optimum (best/ outstanding) use of it for the benefit of mankind.

(A1) (1)YouTube has many videos on various things. Listen to the uses and health benefits of 'Lemon' and share them with your friends.

Ans: Lemons can be used in various **food** and drink preparations. From a simple fresh lime juice to a lemon pie, it's an ingredient that comes packed with a tangy (strong /acidic) taste. Some of its health benefits are:

1. it detoxifies the body (रासायनिक तत्त्वों का असर कम करना)
2. helps in weight loss
3. promotes heart and kidney health
4. Improves digestion
5. a good source of Vitamin C thus boosts immunity.

(ii) Write true or false.

1] The massive data available with us can really work wonders.- **true**
2] Whatever activity done, online is neglected totally.- **false**
3] The Data stored in our cellphone is called small Data- **true**
4] Big Data can be gigabytes of data consisting.- **false**
5] Weather patterns give us pre-warnings of the natural calamities- **true**

(iii) Big Data has affected our.

Big Data has affected	A] our food habits, B] our health care, C] our travelling, D] our scientific pursuits.

(iv) Complete the following sentences.

1] When we like a post on Facebook or share a post on WhatsApp, visit any website, make online purchases, or watch videos,----------
Ans: It is recorded, monitored and analysed.

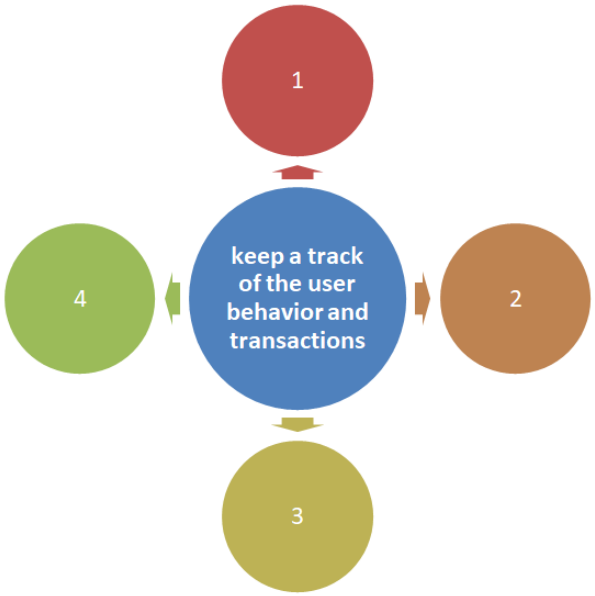
2] It's not the amount of data that is important but----------
Ans: what the organizations do with the data is what matters.

3] Big Data has been useful in identifying and tracking the exact location of a place----------
Ans: With the help of GPS and Google Maps.

4] The smart watches, other wearable, health apps in our phone detect------
Ans: our heart rate, monitor the patient's sleep pattern, keep a record of his exercise.

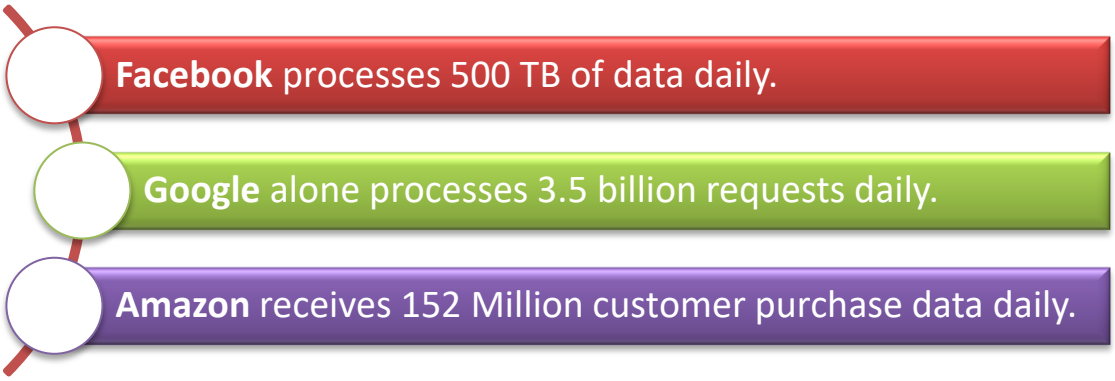
5] Big Data can even predict possible spikes on servers so that---------
Ans: banks can manage transactions accordingly.

(v) Write, What keep a track of the user behavior and transactions.



Ans:
1] Facebook,
2] Google,
3] Twitter
4] Other online giant.

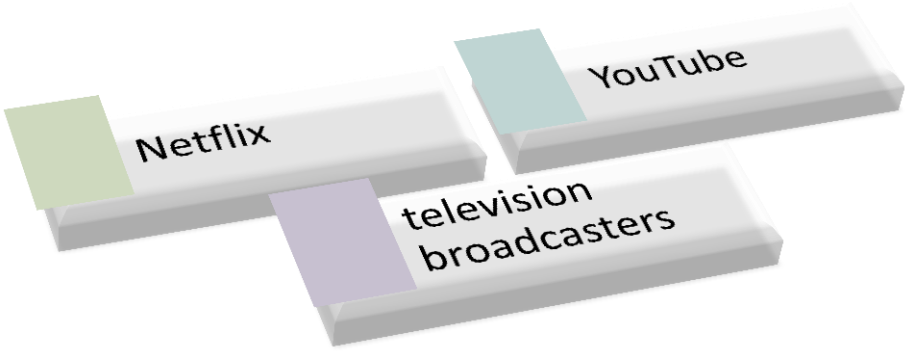
(vii) Write the names of 3 online platforms alone generate a huge amount of data:



(viii)Big Data is increasing in the form of five V's they are..

Five V's	1] volume, 2] variation, 3] velocity, 4] veracity and 5] value.

(ix) Who are taking benefit of Big data in M&E Industry:



(x) How Bigdata helps to target content based on individual Audience interest & Behaviour by providing insights on :

1] What kind of video viewers watch the most.
2] What devices are used for video streaming?
3] How long each video was watched including when was paused, rewind & fast forwarded.
4] Searches, browsing & scrolling behavior.

(A2) (i) Make point wise notes from the lesson regarding the uses of Big Data in the following application. Do not write complete sentences.

Location Tracking -
(1) Get real time traffic data on congestion
(2) Get updates on route closures and one way
(3) Understand accident prone areas
(4) Identify and track exact location.

Health Care Industry -
(1) Smart watches and health apps collect data to offer personalized solutions
(2) Doctors diagnose diseases faster, find, cure as well as maintain patient records
(3) Prevention of disease outbreaks and epidemics
(4) Pharmaceutical companies can create better medicines.

Education Industry -
(1) Provides information about the study patterns of students.
(2) Helps to develop different study material for different students
(3) Helps in understanding student's choices and difficulties
(4) Improves the operational effectiveness of educational institutions

(ii) When you are asked for personal details on social media, what precautions will you take? Discuss in pairs and write down.

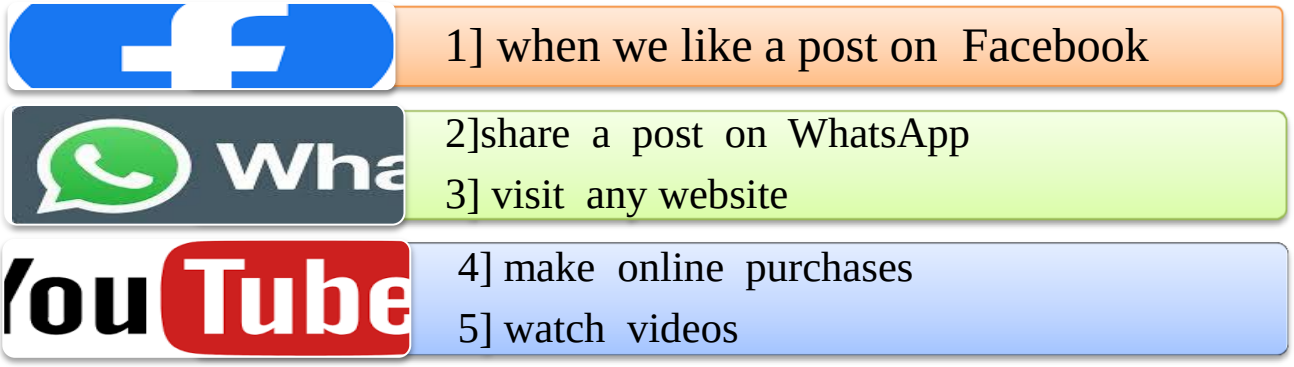
Ans: When I am asked for personal details on social media I will take the following precautions: I don't believe any other person or my e-friends blindly. I would not share my even to the closest people. Because I know 'Password should not be 'passed'.
As well as I will do the following measures
1] I shall verify whether the website is real and not a fraud.
2] I shall never share my personal details like address, phone no: etc.
3] I shall sign out of my accounts.
4] I shall change my privacy settings (regarding who can see my posts)
5] Hackers can get a chance and use unused accounts to get access to our personal details. I shall close/ delete such accounts.
6] I shall not accept friend requests from strangers.
7] I shall install an ad blocker to avoid all types of advertisements.
8] I shall not click on unknown short links.
9] I shall set a strong password.
10] I shall not download anything or click on links that seem suspicious.

(iii) Do you think all the data we receive is used for positive things? If 'No', make a list of the negative things which can be done with the help of Big Data.

Ans: Not total, but I feel that some of our data is put to negative use. A few of the negative things that can be done with the help of Big Data. The following negative things can be done with the help of Big Data.

1] for the cyber crime
2] invasion of privacy,
3] exposing intimate details about someone's life,
4] phishing (जालसाजी /Phishing is the act of attempting to acquire information such as usernames, passwords, and credit card details and sometimes, indirectly, money) by an electronic communication.
5] spamming (unwanted commercial bulk e-mail) and
6] Financial frauds.

(iv)Write the sources of Data collecting and complete the diagram.



(v) Write the weather sources and satellite help us to:

Ans:

A] They help us to understand the weather and help in weather forecasting.
B] Weather patterns give us warnings of the impending natural calamities like floods, earthquakes, tsunami etc.
C] Necessary preparations to combat them can be made well in advance.
D] We can study global warming, predict availability of natural resources like water.

(A3) Guess the meaning of the following idioms and phrases and use them in sentences of your own. One is done for you.

1] One-size-fits-all – suitable for or used in all circumstances

Example: The wrist watches have adjustable belts, so one- size-fits- all

2] 'Once in a blue moon'- seldom/ very rarely

Example: My friend lives in America who calls us once in a blue moon.

3] 'One man army'- someone who can do each and every kind of work.

Example: My Primary teacher would act as a one man army who would teach all the subjects alone and complete official work also.

4] 'Once bitten twice shy'- being careful after an unpleasant experience.

Example: Rajan had not kept his word last time, so today his mother is not ready to hear him again—once bitten, twice shy.

5] 'One up on'- to have or get an advantage over someone

Example: He and his brothers are always trying to get one up on each other.

(A4) (i) Do as directed.

1] Advertisers are one of the biggest players in Big Data. (Change the degree)

a) Begin the sentence with 'Very few'

b) Use 'bigger than' and rewrite the sentence.

Ans: Comp: Advertisers are bigger than most other players in Big Data.

Posi: Very few players in Big Data are as big as advertisers

2] No other diagnosis is as good as the diagnosis done with the help of Big Data.(a)Use 'best' and rewrite the sentence.(b) Use 'better than' and rewrite the sentence.)

Ans: Sup: The diagnosis done with the help of Big Data is the best diagnosis.

Comp: The diagnosis done with the help of Big Data is better than any other diagnosis.

3] These internet giants provide the greatest data about people.

(a) Begin the sentence with 'No other… '

(b) Use 'greater than' and rewrite the sentence.

Ans: Comp: These internet giants provide greater than any other data about people.

Posi: No other data about people provide as great as these internet giants

(ii) Read the sentence from the text.

New insights have enabled the banks and finance companies to come up with suitable plans.

This sentence can be rewritten as

'New insights have enabled the banks as well as finance companies to come up with suitable plans'.

> Remember, 'as well as' serves the same purpose as that of co-ordinating the conjunction 'and' in the sentence. When one of them is inserted in the sentence, other should be removed.

Use 'as well as', 'either ..... or' in the following sentences.

1] Whatever activity we do online is recorded, monitored and analysed.

Ans: Whatever activity we do online is recorded, monitored **as well as** analysed.

Ans: Whatever activity we do online is **either** recorded, monitored **or** analysed.

2] Big Data has been useful in identifying and tracking the exact location of a place.

Ans: Big Data has been useful in identifying **as well as** tracking the exact location of a place.

Ans: Big Data has been useful **either** in identifying **or** **in** tracking the exact location of a place.

3] Weather sensors and satellites help us to understand the weather and help in weather forecasting.

Ans: Weather sensors **as well as** satellites help us to understand the weather and help in weather forecasting.

Ans: **Either** Weather sensors **or** satellites help us to understand the weather and help in weather forecasting.

4] Big Data helps in monitoring the outbreaks of epidemics and diseases.

Ans: Big Data helps in monitoring the outbreaks of epidemics **as well as** and diseases.

Ans: Big Data helps in monitoring the outbreaks of **either** epidemics **or** diseases.

5] New insights have enabled the banks and finance companies to come up with suitable plans.

Ans: New insights have enabled the banks **as well as** finance companies to come up with suitable plans.

Ans: New insights have enabled **either** the banks **or** finance companies to come up with suitable plans.

(iii) There is a revolution in the life style of people which has been affected by Big Data. (Rewrite as a simple sentence)

Ans: There is a revolution in the life style of people, affected by Big Data.

(Or) Big Data brought a revolution in the life style of people.

(iv) Big Data has enabled smooth functioning of these agencies and institutions. (Use 'as well as',)

Ans: Big Data has enabled smooth functioning of these agencies **as well as** institutions.

(v) Big Data not only helps in predicting cybercrimes, but it also helps in handling issues related to mised-transactions and failures in net banking. **(Use 'as well as',)**

Ans: Big Data helps in predicting cybercrimes agencies **as well as** it helps in handling issues related to mised-transactions and failures in net banking.

(vi) The SEC is using Big Data to monitor financial markets for possible illegal trades and suspicious activities.(**Present Perfect continuous Tense**)

Ans: The SEC **has been using** Big Data to monitor financial markets for possible illegal trades and suspicious activities.

(vii) It has tremendously helped in improving individual as well as team performance**.(Use infinitive of the underlined word)**

Ans: It has tremendously helped to improve individual as well as team performance.

(viii) All this data is collected by Facebook. **(Change the Voice)**

Ans: Facebook collects all this data.

(ix) Every student's comprehension level is different**.(Make Negative)**

Ans: Every student's comprehension level is not same/ similar .

(x) The course material can now be designed catering to different requirements of the students. (Rhetorical Question)

Ans: Can't the course material now be designed catering to different requirements of the students?